Letters to the Editor

WHEN "CURE" BECOMES "CARE" IN ROBOTIC NEUROREHABILITATION:
The Critical Role of Nurses in a Novel Sicilian Multidisciplinary Approach

Dear Editor:

The goal of rehabilitation is to assist individuals with disability and/or chronic illness in attaining and maintaining maximum function. The objectives of nurses involved rehabilitation include 1) treating changes in the functional ability and lifestyle of people who are injured, disabled, or chronically ill; 2) supporting adaptive capabilities while promoting achievable independence; and 3) providing education and assistance with lifestyle adjustments that support health and psychological wellbeing to the patients and their caregivers.[1]

Robotic rehabilitation is a field of research dedicated to the understanding and augmentation of rehabilitation through the application of robotic devices. Rehabilitation using robotics is generally well-tolerated by patients and has been found to be an effective adjunctive therapy for individuals suffering from motor impairments due to neurological disorders.[2,3] Indeed, such effectiveness relies on intensive task-specific training in which the patient practices physical movements repetitively, using correct form, to boost neural plasticity and functional recovery. Based on growing evidence supporting the positive effects nurses have in rehabilitation outcomes,[4,5] we proposed a new multidisciplinary rehabilitative approach that recognizes nurses as a key component in the care of patients attending an innovative rehabilitation service. This model was designed to reduce disparities in healthcare allocations and improve migration of Sicilian patients to more advanced rehabilitation facilities in Northern Italy and other European countries.

In January 2013, the IRCCS Centro Neurolesi "Bonino-Pulejo" of Messina, Italy, supported by the local government and the Italian Ministry of Health, founded the first Sicilian Robotic NeuroRehabilitation Laboratory, which initially focused on gait training by means of Lokomat® (Hocoma AG, Volketswil, Switzerland), a powered gait orthosis with integrated computer-controlled linear actuators placed at each hip and knee joint, a body-weight support system, and a treadmill).[2]

Since then, many other robotic devices designed to assist patients throughout their entire rehabilitation treatment plan have become a part of the rehabilitation unit, including Erigo®, for early verticalization, and Armeo Power®, for upper limb rehabilitation (Hocoma AG); Amadeo® (Tyromotion GmbH, Graz, Austria), to improve hand force and functionality; FES-Cycling® (Anatomical Concepts [UK] Ltd, Clydebank, Scotland), to potentiate muscle strength and reduce spasticity; and Ekso-GT® (Ekso Bionics, Richmond, California), for balance and gait stability.

FIGURE 1. Pictured here, physiotherapists and nurses at the Sicilian Robotic NeuroRehabilitation Laboratory (founded by IRCCS Centro Neurolesi "Bonino-Pulejo" of Messina, Italy) work together utilizing robotic devices to rehabilitate patients with motor impairments due to neurological disorders.

In addition to these innovative robotic technologies, the multidisciplinary team, comprising neurologists, psychologists, physiotherapists, speech therapists, occupational therapists, neurophysiology technicians, and nurses, is an essential part of this approach to neurorehabilitation. However, we believe that nurses, in particular, play a pivotal role in each patient's rehabilitation (Figure 1). The nurses are responsible for monitoring a patient's vital parameters before, during, and after the rehabilitation training; providing patients with first aid in case of injuries, illness, or robotic-related side effects (e.g., syncope); assisting other therapists in the use of robotic devices; and assisting patients in regaining independence.

On such basis, we believe action is needed to raise awareness, not just in Italy, but worldwide, of the important role nurses have in the neurorehabilitation environment, and to recognize that, as an integral part of the multidisciplinary team, nurses can improve the standards of patient care and outcomes.[4,5] It is important to note that because the role of the physiotherapist might overlap with that of the nurse in this setting, the two healthcare providers should be viewed as complementary to each other and work together to develop common goals regarding the care of each of their patients.[6]

The treatment needs of patients suffering from motor impairments due to neurological disorders are complex and necessarily individualized, and nurses play a positive, critical role in the rehabilitation journey of these patients. In the context of robotic neurorehabilitation programs, it is important for nurses to clearly define their roles within the multidisciplinary team. Further research is required to gain greater insight and understanding of the role nurses play in robotic neurorehabilitation so that their presence in this environment gets the support and recognition it deserves, thereby improving patient outcomes.

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With regards,

**ALFREDO MANULI, MSc , and
ROCCO SALVATORE CALABRÒ, MD, PhD**
Both with IRCCS Centro Neurolesi "Bonino-Pulejo" in Messina, Italy

Correspondence. *Rocco Salvatore Calabrò, MD, PhD; Email: salbro77@tiscali.it*